



WASHINGTON'S AGRICULTURAL CHEMICAL USAGE, 2005

NATIONAL AGRICULTURAL STATISTICS SERVICE

United States Department of Agriculture • Washington, DC 20250

Washington Field Office • Olympia, WA 98507

Ag Statistics Hotline: 1-800-727-9540 • www.usda.gov/nass/



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Contact: Chris Messer (360)902-1940
nass-wa@nass.usda.gov

Chemical Usage Overview

The agricultural chemical use estimates in this report refer to on-farm use of commercial fertilizers and pesticides on fall potatoes for the 2005 crop year. Farm and ranch operators were enumerated late in the growing season after the farm operator had indicated that planned applications were completed. The chemical use data were not summarized for geographical areas other than by those States published in this report.

The data were compiled from the Agricultural Resources Management Survey (ARMS). Data collection occurred primarily during the months of September to December of 2005.

This report excludes pesticides used for seed treatments and post harvest applications to the commodity. Spot treatments, which account for a very small percentage of total applications, are mentioned only in the "Active Ingredients and Publication Status" tables.

Pest Management Practices Overview

Producers of fall potatoes were last asked about their pest management practices in 2003. To prevent pests, 69 percent of the farms chopped, sprayed, mowed, plowed, or burned field edges, lanes, ditches, roadways, or fence lines. In addition, 91 percent of the potato acreage had been rotated with some other crop over the past 3 to control pests. Ninety-eight percent of the potato acreage was scouted for weeds, insects or mites, and diseases, and the scouting was performed by the operator, partner, or family member on at least 53 percent of the farms.

Survey, Estimation Procedures, and Reliability

Data for fall potatoes were collected on the Agricultural Resource Management Survey (ARMS), which collected 6,034 usable records. Data collecting for the ARMS survey occurred during the months of September through December 2005. ARMS screening samples were drawn from the NASS List Sampling Frame. This extensive sampling frame covers all types of farms and accounts for approximately 90 percent of all land in farms in the United States. All farms on the list had a possibility of being selected for the screening sample.

The chemical application data, reported by product name or trade name, are reviewed within each State and across States for reasonableness and consistency. This review compares reported data with manufacturers' recommendations and with data from other farm operators using the same product. Following this review, product information is converted to an active ingredient level. The chemical usage estimates in this publication consist of survey estimates of those active ingredients.

The surveys were designed so that the estimates are statistically representative of chemical use on the targeted crops in the surveyed States. The reliability of these survey results is affected by sampling variability and non-sampling errors. Since all operations producing the crops of interest are not included in the sample, survey estimates are subject to sampling variability.

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Terms and Definitions

Active ingredient: Refers to the mechanism of action in pesticides which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient. A single method of conversion has been chosen for active ingredients having more than one way of being converted. For example in this report, copper compounds are expressed in their metallic copper equivalent, and others such as 2, 4-D and glyphosate are expressed in their acid equivalent.

Allelopathic: The release of chemical compounds from a plant that will inhibit the growth of another plant, such as weeds.

Application rates: Refer to the average number of pounds of a fertilizer primary nutrient or pesticide active ingredient is applied to an acre of land. **Rate per application** is the average number of pounds applied per acre in one application. **Rate per crop year** is the average number of pounds applied per acre counting multiple applications. **Number of applications** is the average number of times a treated acre received a specific primary nutrient or active ingredient.

Area applied: Represents the percentage of crop acres receiving one or more applications of a specific primary nutrient or active ingredient. This report does not contain acre treatments. However, **acre treatments** can be calculated by multiplying the acres planted by the percent of area applied and the average number of applications.

Common name: An officially recognized name for an active ingredient. This report shows active ingredient by common name.

Crop year: Refers to the period immediately following harvest of the previous crop through harvest of the current crop.

Farm: Any establishment from which \$1,000 or more of agricultural products were sold or would normally be sold during the year. Government payments are included in sales. Places with all acreage enrolled in set aside or other government programs are considering operating.

Fertilizer: Refers to applications of the primary nutrients; nitrogen, phosphate, and potash.

Fungi: A lower form of parasitic plant life which often reduces crop production and/or lowers the grade quality of its host.

Monitoring: Includes proper identification of pests through systematic sampling or counting or other forms of scouting. Also, weather monitoring to predict levels of pest populations or to determine the most effective time to make pesticide applications, and soil testing where appropriate.

Nematodes: Microscopic, worm-shaped parasitic animals. Damage to many crops can be severe.

Pesticides: As defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), pesticides include any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. The four classes of pesticides presented in this report and the pests targeted are: herbicides - weeds, insecticides - insects, fungicides - fungi, and other chemicals - other forms of life. Miticides and nematicides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals.

Prevention: The practice of keeping a pest population from infesting a crop or field. It includes such tactics as using pest-free seeds or transplants, alternative tillage approaches such as no-till or strip-till systems, choosing cultivars with genetic resistance to insects or disease, irrigation scheduling to avoid situations conducive to disease development, cleaning tillage and harvesting equipment between fields or operations, using field sanitation procedures, and eliminating alternate hosts or sites for insect pests and disease organisms.

Suppression: Tactics include cultural practices such as narrow row spacings or optimized in-row plant populations, using cover crops or mulches, or using crops with allelopathic potential in the rotation. Physical suppression tactics may include cultivation or mowing for weed control, baited or pheromone traps for certain insects, and temperature management or exclusion devices for insect and disease management. Biological pesticides and controls, including mating disruption for insects, can be considered as alternatives to conventional pesticides. Determining pest thresholds and alternating pesticide active ingredients to avoid resistance buildup are suppression methods which minimize pesticide use.

Trade name: A trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents.